

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 46

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PATRICIA TEKAMP-OLSON, GUY MULLENBACH
and MARY ELLEN WERNETTE-HAMMOND

Appeal No. 2001-1048¹
Application No. 08/121,105

ON BRIEF

Before ROBINSON, ADAMS, and GRIMES, Administrative Patent Judges.

ADAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 26-29, which are all the claims pending in the application.

Claim 26 is illustrative of the subject matter on appeal and is reproduced below:

¹ This appeal has the same inventive entity as Appeal No. 99-1263 (Application No. 08/487,795, filed June 7, 1995). We note that Application No. 08/487,795 is a divisional of the instant application on appeal. Accordingly, we have taken this appeal out of order to review these two related appeals together.

26. An isolated inhibitor of IL8 receptor 2-binding wherein said inhibitor is an antibody capable of

- (a) competing with IL8 for binding to the IL8 receptor 2; and
- (b) interacting with residues of a peptide of the amino-terminal extracellular domain of the IL8 receptor 2 wherein the peptide comprises the sequence M-E-S-D-S-F-E-D-F-W-K-G-E-D-I (SEQ ID NO:2).

The references relied upon by the examiner are:

Murphy	5,374,506	Dec. 20, 1994
Lee et al. (Lee)	5,552,284	Sep. 3, 1996
Geysen	5,595,915	Jan. 21, 1997

LaRosa et al. (LaRosa), "Amino Terminus of the Interleukin-8 Receptor Is a Major Determinant of Receptor Subtype Specificity," J. Biol. Chem., Vol. 267, No. 35, pp. 25402-25406 (1992)

GROUND OF REJECTION

Claims 26-29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Murphy in view of Lee, Geysen and LaRosa.

We reverse.

DISCUSSION

In reaching our decision in this appeal, we considered appellants' specification and claims, in addition to the respective positions articulated by the appellants and the examiner. We make reference to the examiner's Answer² for the examiner's reasoning in support of the rejection. We further reference appellants' Brief³ for the appellants' arguments in favor of patentability.

² Paper No. 45, mailed October 4, 2000.

³ Paper No. 44, received September 5, 2000.

THE REJECTION UNDER 35 U.S.C. § 103:

Prima facie obviousness based on a combination of references requires that the prior art provide “a reason, suggestion, or motivation to lead an inventor to combine those references.” Pro-Mold and Tool Co. v. Great Lakes Plastics Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629 (Fed. Cir. 1996).

[E]vidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. . . . The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular.

In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (citations omitted). The suggestion to combine prior art references must come from the cited references, not from the application’s disclosure. See In re Dow Chemical Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988).

According to the examiner (Answer, page 4) Murphy “teaches of [sic] the amino acid sequence for a functional human interleukin 8 receptor, which has 77% amino acid identity with a second human neutrophil receptor isotype that also binds IL-8.” In addition, the examiner notes (id.) that Murphy “sets forth of [sic] a method of screening ligands of the IL-8 receptor by measuring binding affinity....” However, as the examiner recognizes (id.) “Murphy does not teach of [sic] antibodies which compete with IL-8 for binding to the IL8 receptor 2.”

The examiner relies on Lee to teach antibodies raised against PF4A (IL8 receptor 1), and Geysen to teach methods of identifying the antigenically active

sequences of a protein. See Answer, page 4. In addition, the examiner relies on LaRosa (Answer, page 5) to “teach that the specificity of ligand binding to both IL -8 receptor subtypes is dictated by the heterogeneous NH₂ terminal domain.”

From the these teachings the examiner concludes that (id.):

it would have been prima facie [sic] obvious to one of ordinary skill in the art at the time of the invention to have incorporated the interleukin 8 receptor 2 molecule as taught by Murphy and to elicit a [sic] antibodies against the antigenically active sequences as taught by Lee et al[.] and Geysen. One would have be[en] motivated to elicit an antibody against these regions in view that [sic] LaRosa sets forth that the specificity of ligand binding to both IL -8 receptor subtypes is dictated by the heterogeneous NH₂ terminal domain.

The claimed invention requires, inter alia, that an antibody (1) compete with IL8 for binding to IL8 receptor 2, and (2) interact with residues of a peptide of the NH₂ terminal extracellular domain of IL8 receptor 2. In this regard, appellants focus our attention on LaRosa. Appellants explain (Brief, page 8) that LaRosa teaches two IL8 receptors that bind “IL8 with similar affinity, but differed in their ability to bind related ligands, MGSA/GRO and NAP-2.” These two receptors are (1) 4ab, now known as IL8 receptor 2; and (2) F3R, the rabbit homologue of IL8 receptor 1. According to LaRosa (page 25402, column 2) F3R and 4Ab both bind IL -8 with high affinity, however, unlike F3R, 4AB IL -8 binding is competed by MGSA/GRO and NAP-2. As relied upon by the examiner, LaRosa “demonstrate [by switching the NH₂-terminal domains of these two receptors] that the extracellular NH₂-terminal region of these receptor subtypes dictates the different ligand binding specificities.”

(Id.) However, to be clear, LaRosa's phrase "different ligand binding specificities" refers to the ability of the receptor to bind IL -8, MGSA/GRO and NAP-2.

With regard to appellants' claim limitation requiring the antibody to interact with residues of a peptide on the NH₂-terminal extracellular domain of IL-8 receptor 2, LaRosa finds (page 25404, bridging sentence, columns 1-2) "that the affinity for IL-8 is not determined by the specific amino acid sequence of the NH₂ terminus, however, our data does not exclude a role of the NH₂ terminus on the formation of the high affinity binding site." From this, appellants urge (Brief, page 10) that "[t]his finding would discourage one skilled in the art from making antibodies to the amino terminus."

In response, the examiner argues (Answer, page 8) that:

LaRosa has demonstrated that IL8R2 binds IL8, MGSA/GRO and NAP-2; and that a fusion of IL8R2-IL8R1 bound IL8, MGSA/GRO and NAP-2; and that a fusion of IL8R1-IL8R2 weakly bound MGSA/GRO; one of ordinary skill in the art would recognize that the only molecule which did not bind MGSA/GRO with high affinity was the molecule missing the NH₂ terminus of the 4Ab (IL8R2) molecule. In view that [sic] LaRosa et al[.] set forth that IL8 binding for [sic] IL8R2 is competed by MGSA/GRO and NAP-2, and that the molecule lacking the NH₂ terminus of IL8R2 did not bind MGSA/GRO with as high an affinity, one of skill in the art would be motivated to elicit an antibody towards the NH₂ terminus peptides of IL8R2.

As we understand it, the examiner's argument is that since LaRosa teaches the NH₂ terminus determines the receptor's ability to bind IL -8, MGSA/GRO and NAP-2, a person of ordinary skill in the art would necessarily be motivated to elicit anti-IL8R2 NH₂ terminus peptide antibodies to competitively inhibit IL8 binding of

IL8 receptor 2. However, we note that in order to establish a prima facie case of obviousness, there must be both some suggestion or motivation to modify the references or combine reference teachings and a reasonable expectation of success. In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). In the absence of a reasonable expectation of success in obtaining anti-IL8R2 NH₂ terminus peptide antibodies that competitively inhibit IL8 binding of IL8 receptor 2, one is left with only an “obvious to try” situation which is not the standard of obviousness under 35 U.S.C. § 103. In re O’Farrell, 858 F.2d 894, 904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

In determining whether the evidence relied upon provides one with a reasonable expectation of success, we recognize appellants’ argument (Brief, page 11) that LaRosa notes “the uncertainty of the role of the NH₂ terminus, ... [by stating] that the ‘data does not exclude a role of the NH₂ terminus on the formation of the high affinity binding site.’” In addition, LaRosa suggests (page 25406, column 1) that “[t]he NH₂ terminus may provide specificity by either preventing or allowing the ligands to interact with a second site on the receptor, possibly by conformational constraints.” In view of this, LaRosa conclude (page 25406, column 2) that “[d]etailed molecular resolution of IL-8 and the IL-8 binding site will provide the framework for the development of novel IL-8 receptor antagonists....” Therefore, in our opinion, LaRosa would not provide a person of ordinary skill in the art with a reasonable expectation of success in obtaining the claimed invention. Murphy, Lee, and Geysen fail to make up for the deficiencies of LaRosa.

Given the facts in evidence on this record, it is our opinion that the examiner has failed to provide the evidence necessary to establish that an antibody that interacts with residues of a peptide of the amino-terminal extracellular domain of the IL8 receptor 2 as claimed, would reasonably be expected to inhibit IL-8 binding. While the examiner infers that an antibody capable of interacting with residues of a peptide of the amino-terminal extracellular domain of the IL8 receptor 2 would act in manner similar to MGSA/GRO and NAP-2, the examiner presents no evidence to support this inference. Therefore, we agree with appellants (Brief, page 12) that “[t]he [e]xaminer failed to establish a prima facie case of obviousness because those with ordinary skill in the art would not be enabled to practice the invention with a reasonable expectation of success” [emphasis removed]. In the absence of a reasonable expectation of success, one is left with only an “obvious to try” situation which is not the standard of obviousness under 35 U.S.C. § 103. See O’Farrell.

Accordingly, we reverse the rejection of claims 26-29 under 35 U.S.C.
§ 103 as being unpatentable over Murphy in view of Lee, Geysen and LaRosa.

Having determined that the examiner has not established a prima facie case of obviousness, we find it unnecessary to discuss the appellants' arguments relating to unexpected results (Brief, page 13), relied on by appellants to rebut any such prima facie case.

REVERSED

DOUGLAS W. ROBINSON)	
Administrative Patent Judge)	
)	
)	BOARD OF PATENT
DONALD E. ADAMS)	
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
)	
ERIC GRIMES)	
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